

PSIII-16 The Effects of Secondary Iron Injection to Suckling Piglets Injected with Two Levels of Iron at Birth on Growth Performance and Hematocrit Level in Suckling Period.

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Abstract: This experiment was conducted to evaluate the effects of secondary iron injection in suckling piglets injected with 2 levels of iron at birth on growth performance and hematocrit level during the suckling period. Twenty suckling pigs from 5 litters were allotted into 2 treatments within litter (10 pigs per treatment) based on body weight and gender as follows: 1) Iron100b: intramuscular injection of 100 mg iron-dextran at birth (d 1-2 of age), and 2) Iron200b: intramuscular injection of 200 mg iron-dextran at birth. A 200 mg iron-dextran was injected to all piglets intramuscularly at d 14 after the first injection (d 15-16 of age; 11 d before weaning at d 26-27 of age). Body weight and hematocrit level were measured at d 0, 7, 14 (before second injection), 21, and 25 (weaning) after the first injection. No difference was observed in growth performance between the treatments. The Iron200b treatment had greater hematocrit levels than the Iron100b treatment at d 14 ($P < 0.05$; 32.50 vs. 37.40% for Iron100b and Iron200b, respectively), 21 ($P = 0.06$), and 25 ($P < 0.05$; 37.90 vs. 40.75%) after the first injection (d 0, 7, and 11 after second injection, respectively). The changes in hematocrit levels tended to be greater for the Iron200b treatment than the Iron100b treatment in d 7-14 ($P = 0.08$) and 0-14 ($P = 0.06$; 5.55 vs. 11.95%) after the first injection. After the second injection, the Iron100b treatment had greater increases ($P < 0.05$) in hematocrit levels than the Iron200b treatment for d 14-21 and 14-25 (5.40 vs. 3.35%) of the experiment. In conclusion, with the second injection, the 200 mg iron injection at birth had greater hematocrit levels than the 100 mg iron injection until weaning whereas the increase in hematocrit level by the second injection was greater in the 100 mg iron injection at birth than the 200 mg iron.

Keywords: hematocrit, second iron injection level, suckling pigs

PSIV-13 Effects of Increasing Dietary Alpha-Linolenic Acid on Nursery Pig Growth Performance and Response to Immune Challenge.

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Abstract: A total of 350 weaning pigs (Line 241 × 600, DNA; initially 5.8 ± 0.1 lb BW) were used in a 41-d study to evaluate growth performance and immune response of nursery pigs fed diets containing increasing levels of O3 Trial Feed, a source of omega-3 fatty acids (alpha-linolenic acid). At weaning, pigs were randomly assigned to 1 of 5 dietary treatments in a completely randomized design with 5 pigs per pen and 14 replications per treatment. The dietary treatments included increasing percentages of O3 Trial Feed (0, 1, 2, 3, and 4%). Omega-6:3 ratios for the 5 treatments within each phase were: Phase 1 (27.3:1, 11.6:1, 7.4:1, 5.4:1, 4.3:1); Phase 2 (23.0:1, 9.6:1, 6.1:1, 4.5:1, 3.6:1); and Phase 3 (24.4:1, 10.2:1, 6.5:1, 4.8:1, 3.8:1), respectively. On d 25, two pigs per pen were injected with 20 µg of *Escherichia coli* (*E. coli*) lipopolysaccharide (LPS) per kg BW and 1 pig per pen was injected with saline to serve as a control. Body temperature was recorded from the 3 pigs per pen prior to the injection (hour 0) and 2, 4, 6, and 12 h after injection. On d 25 a blood sample was collected 4 h post injection from pigs injected with the LPS challenge to determine IL-1β levels in serum. For overall growth performance, there were no differences observed in ADG, ADFI, or G:F ($P > 0.05$). Temperature increased at 2 h post LPS injection, then decreased as time from the LPS injection increased (main effect of time, $P < 0.0001$). Dietary treatment did not influence change in body temperature or IL-1β ($P > 0.05$). In this study, dietary alpha-linolenic acid levels did not influence growth performance or immune response to a LPS challenge.

Table 1. Influence of O3 Trial Feed on overall nursery pig performance¹

Item	O3 Trial Feed, %					SEM	P =	
	0	1	2	3	4		Linear	Quadratic
ADG, g	415	384	425	408	411	7.5	0.497	0.695
ADFI, g	630	615	634	616	627	10.8	0.889	0.726
G:F, g/kg	659	625	670	662	657	9.2	0.264	0.906

Keywords: omega-3, nursery pig, LPS